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Remarks/Arguments:

Applicant wishes to thank the Examiner for her detailed comments. As Examiner has chosen to group her comments by section, Applicant shall address 5 each of these sections and points in turn.

Election/Restrictions

1.-2. No response is believed necessary. Claims 1-16 were canceled. Claims 17 -
10 41 remain in this matter.

Claim Rejections - 35 USC § 103

3-4 Examiner has stated:

15 "Claims 17-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandon et al, US Patent No. 6114007 in view of Troutman et al, US Patent Publication 2004/0002559.

"Brandon et al discloses fire resistant, composite molding compositions containing an effective amount of a flame retardant additive.... Also disclosed is a method of making suitably fire resistant composites, and articles formed therefrom. This 20 method includes blending a resin, reinforcing fiber and filler in a mixer adding a liquid resin which would function as a lubricant, and extruding the mixture through a die. See col. 3, line 19 through col. 5, line 47.

"The inorganic filler, when used, may be used at any desired amount, for example, at a concentration of from about 20% by weight to about 90% by weight of the composition.....

25 "Various additional additives employed in the invention include fillers, catalysts, colorants, mold release agents and inhibitors....

"Troutman et al provides flame retardant coating compositions and articles coated therewith, which compositions comprise (A) a coating and (B) an effective flame retarding 30 amount of a mixture of (i) at least one compound selected from the group consisting of the (a) sterically hindered nitroxyl stabilizers, (b) sterically hindered hydroxylamine stabilizers and (c) sterically hindered alkoxyamine stabilizers and (ii) at least one conventional flame retardant selected from the group consisting of (d) organohalogen flame retardants, (e) organophosphorus flame retardants, (f) isocyanurate flame retardants and (g) melamine based flame retardants. The 35 coated articles are for example iron, steel, stainless steel, aluminum and other non-ferrous metals, wood, plywood, paper, cardboard, chip board, particle board, plastics, thermoplastics, epoxies, neoprene, rubber

"Patentee includes fillers ... Suitable substrates for the patented coatings include ...thermoplastics, thermoplastic polyolefin, epoxies, neoprene, rubber and composites.

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“The patented coatings may be applied to exterior siding,

“The patented compositions may contain additional components such as pigments, dyes, plasticizers, antioxidants, thixotropic agents, levelling assistants, basic costabilizers, further light stabilizers like UV absorbers and/or sterically hindered amines, metal passivators, 5 metal oxides, organophosphorus compounds, hydroxylamines, and mixtures thereof, especially pigments, phenolic antioxidants, calcium stearate, zinc stearate. UV absorbers of the 2-(2'-hydroxyphenyl)benzotri- azole and 2-(2-Hydroxyphenyl)-1,3,5-triazine classes, and sterically hindered amines. The compositions may also comprise silica. See page 1, paragraph [0018] throughpage 3, paragraph [0065] and page 19, paragraph 0323 through page 20, 10 paragraph[0337].”

Examiner generalizes that:

“Because Troutman et al documents that various additives are conventional in compositions used to form components for building materials such as roofing, the inclusion of metal stearates, talc silica and metal oxides in the molding compositions of Brandon et al would have been obvious to one of ordinary skill in the art at the time of applicant's invention. The selection of a virgin polymer or recycled polymer is usually determined by cost considerations and there is nothing unobvious in such a limitation. Brandon discloses such a wide variety of building components that may be formulated by the patented method that panels and embossed components would be considered obvious to the ordinary practitioner of this art.”

Applicant respectfully asserts that three are a number of errors and misconceptions in the Examiner's analysis. An important basic point to consider is 25 the difference between thermosetting materials and thermoplastic materials.

Thermosetting plastics are materials such as urea resins which set to a permanent shape and cannot be re-melted or reshaped. They set due to chemical reactions in which molecules cross-link into large polymer molecules which retain their final molded shape. Thermosetting plastics are usually mixed at room 30 temperatures and forced into their end shape while the polymerization is going on, which is a very different process from thermoplastics processing. Thermosetting materials are generally not extruded through elaborately shaped dies to form their final shapes, as are thermoplastics. If they are extruded at all, as *Brandon* tells us, it is with the purpose of forming a “shaped ‘log’ of bulk molding material

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compound. The composition may then be molded using any one of several molding means known in the art..” (*Brandon*, col. 5, lines 42-51). Extrusion, if done at all with thermosetting materials, is generally for the purpose of mixing the material and metering off hunks of appropriate size to fit into the molds, where the final
5 shape is imposed.

In contrast, thermoplastic materials become soft and pliable whenever heated without any change of material properties. Thermoplastic materials are usually processed via thermal extrusion at temperatures above the melting point of the thermoplastic, and then shaped through dies into shapes which they will retain
10 until they are re-heated. Since the extrusion die will generally form their final shape, it is important that they flow smoothly thorough the extruder with no voids bubbles or tears, and thus lubricants are important in their formulation, unlike thermosetting plastics where they are generally not important. In contrast, for thermosetting materials, mold release fluids are used to maintain the longevity of
15 the molds. A mold release fluid is distinctly different from a lubricant which is designed to maintain the flow of a material through a body, such as an extruder die.

The present claims in this case are Claims 17-41. Claims 17 and 29 are independent claims, with Claims 18-28 and 30-41 dependent from Claims 17 and
20 29 respectively. As amended, Claim 17 recites:

17. A formulation for synthetic building material which is formulated for extrusion processing, comprising:
25 filler material of proportions of 65% - 90% of overall composition;
thermoplastic resin (*emphasis added*) of proportions of 10% - 35% of overall composition; and
an extruder processing stabilizer/lubricant.

Likewise, Claim 29 recites:

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29. A synthetic building material formulated for commercial extrusion processing, said material comprising:

5 filler material of proportions of 65% - 90% of overall composition;

composition; and

10 extruder processing stabilizer/lubricant which is chosen from a group consisting of metallic stearate, hydrocarbons, fatty acids, esters, amides fluoropolymers, silicones, and boron nitride.

10 The synthetic building material recited in Applicant's Claims 17 and 29 both require thermoplastic resin with a high proportion of filler material and one of the listed extruder stabilizer/lubricants.

15 In contrast, *Brandon* discloses a fire resistant thermosetting composite formulation by the adding of polyvinyl chloride (PVC) to the matrix. The addition of PVC to thermosetting material does not transform it to a thermoplastic material. It is still a thermoset. *Brandon* also states that its formulation is compatible with inorganic fillers but these fillers are optional. The material of the formulation of
20 *Brandon* is designed to be processed in molds, as is standard practice in the industry, and as disclosed in the quotation from *Brandon* above.

25 *Troutman* discloses flame retardant coatings. It provides very thin layers of flame retardant materials which are applied to a great variety of base materials. The only references to thermoplastic materials that Applicant can find are a reference in paragraph 0032, where "an extruded thermoplastic coating" is recited. By its nature, a coating is preferably thin, and the use of fillers, as required by the claims of the present invention would not be contemplated by *Troutman*. Bulk is naturally undesirable in coating layers, and Applicant asserts that this use as a thin coating teaches away from the formulation of the present invention. Without the
30 high proportion of fillers added to the thermoplastic resin required by the claims of

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the present invention, there will be little need for the extruder stabilizer/lubricants, also required by the present invention. These extruder stabilizer/lubricants solve a specific problem with extrusion of the high filler/thermoplastic mixture, as will be discussed in more depth below. If high concentrations of fillers are not present, as
5 they are certain not in a "coating", the problem does not exist to be solved.

Examiner also states that *Troutman* teaches the use of thermoplastics as a suitable substrate for coating with the flame retardant material. This of course is quite different than the formulation or the synthetic building material of the present
10 invention. The present invention does not utilize a coating, but is instead a specific material extruded from minerals and thermoplastic which is wholly fire resistant in itself. It does not use the fire retardants referred to in *Troutman*. It is not applied as a coating to another material. The fire resistance is imparted by the mineral fillers in the extruded thermoplastic binder. This, in fact, is a substantial advantage of the
15 present invention over *Troutman*, as it is not necessary to fabricate a substrate material and then coat it with flame retardant. The material is fire retardant in itself. This also further emphasizes the inapplicability of *Troutman* as a reference. If *Troutman* provided teachings of the present invention, flame retardant coatings would not be necessary. The fact that *Troutman* is involved with producing flame
20 retardant coatings shows that it has not contemplated the formulation of the present invention.

Furthermore, as recited in page 7, lines 17 through page 8, line 7 of the present specification:

25 "As discussed above, there are special conditions that must be considered when dealing with extrusion processes. It has been found that thermoplastic resin in combination with a high

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proportion of mineral filler cannot be extruded through conventional extrusion processes. Conventional extrusion processes are also complicated by the introduction of high filler content into thermoplastic resin because of the viscosity differences and as well as the different flow abilities of the materials. In the present invention these complications were overcome by using a special processing stabilizer/lubricant. The processing stabilizer/lubricant could be selected from either of the group like metallic stearate, hydrocarbons, fatty acids, esters, amides fluoropolymers, silicones, and boron nitride but metallic stearates (Calcium, Zinc and/or Aluminium Stearate) will be the most preferred. The criteria for the selection of metallic stearate was on the basis of factors like thermal stability, compatibility with the polymer matrix, melting point lower than polymer processing temperatures, optimum particle size to obtain maximum dispersibility and appropriate price-performance ratio.

"This processing stabilizer/lubricant agent is added at 0.5-4.0% of the formulation depending on the type and concentration of the mineral filler. It provides a lubricating effect on the polymer chains that will decrease melt viscosity and enhance polymer flow to improve dispersion and acts as a lubricant to aid in processing of a formulation with 65% - 90% filler content. It also provides better surface wetting between the surface of the mineral filler and the thermoplastic resin and acts as a lubricant to aid in processing of a formulation with 65% - 90% filler content."

20

Claims 17-19 and 29-30 as currently amended emphasize that the claimed formulation and synthetic building material are formulated specifically for extrusion using thermoplastic resins with filler materials. As shown in the excerpt quoted from the specification, the stabilizer/lubricant, as disclosed, is explicitly included for extrusion processes, and no new matter has been introduced by these amendments.

25

Since the extruder processing stabilizer/lubricant is required in the present formulation and synthetic building material to solve a specific problem, namely to allow extrusion of mixtures with large concentrations of filler material in thermoplastic resins, citations of references using thermosetting materials or thermoplastic materials without the required high concentrations of filler material are not relevant. These references do not address the same problem which is solved by the formulation of the present invention.

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Therefore, it cannot be fairly said that the present invention is obvious in view of the cited combination of references, because they do not address the problem, or even acknowledge the existence of the problem which the present invention solves. There can be no motivation to combine these references to solve
5 a problem which is not acknowledged by the references to exist.

Thus Applicant respectfully asserts that it cannot be fairly said that *Brandon* or *Troutman*, either singly or in combination, teach or fairly suggest the formulation including thermoplastic resin, high concentration filler and stabilizer/lubricant required by the elements of Claims 17 and 29. These features
10 are not found nor fairly suggested nor made obvious by the *Brandon* and *Troutman* references either alone or in any combination of the cited prior art.

Applicant therefore respectfully asserts that Claims 17 and 29 cannot be said to be obvious in view of the combination of the cited references. Claims 18-28 and
15 30 - 41, as dependent upon Claims 17 and 29 respectively, all inherit these assertedly novel and non-obvious features. Therefore, Applicant respectfully asserts that these claims are not obvious in view of the cited combination of references. Applicant therefore respectfully requests that the rejection be withdrawn and Claims 17 – 41, as amended, be allowed.

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Conclusion:

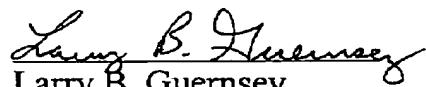
5 Applicant has endeavored to put this case into complete condition for allowance. It is thought that the §103 rejections were unfounded on the references cited. Applicant therefore respectfully asks that the rejections be withdrawn and that allowance of all claims presently in the case now be granted.

10 If the Examiner would like to discuss any of the points involved in the Response, she is urged to contact Applicant's Attorney at the numbers included below.

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